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DR. D. S. FAIRCHILD

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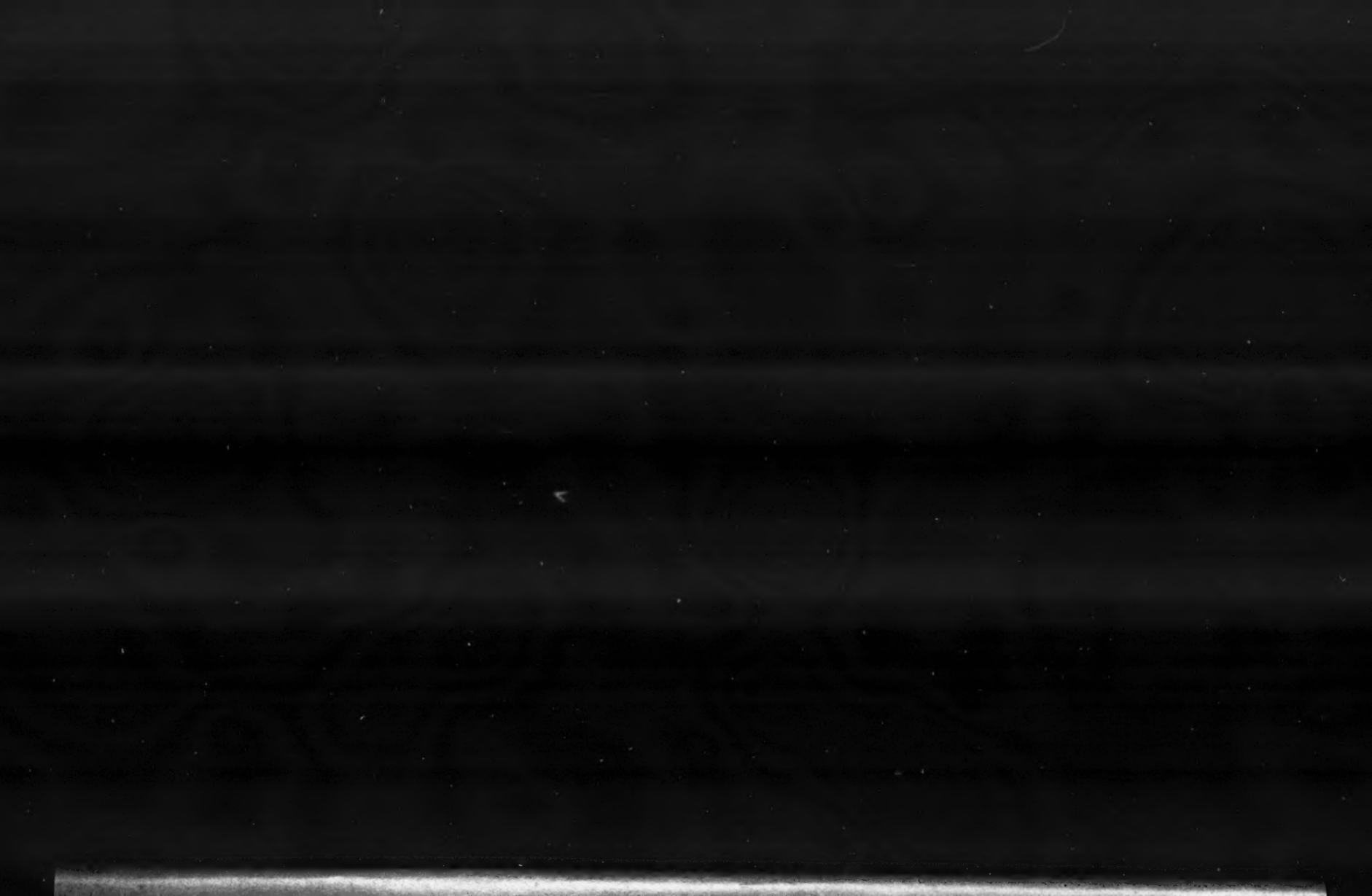

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MEDICINE—A BRANCH OF GENERAL SCIENCE.

BY

W. WARNER WATKINS, M. D., PHOENIX ARIZ.

(Presidential Address before the sixth annual session of the Medical and Surgical Association of the Southwest, El Paso. Texas, Dec. 2-3-4. 1920.)

Aristotle, who was called by Dante "the master of them that know," claimed all knowledge as his province, and therein marked out the path that every branch of medicine should follow. The profession of medicine was hereditary in his family, and as biologist, rather than philosopher, Aristotle is esteemed by us. In treating the study of animal and human organisms as a part of general science he formulated a principle which, had it been adhered to, would have saved medicine from the oblivion of the dark ages. During that period of scientific famine, medicine became the plaything of charlatans, who purposely confused it with demonology, astrology, witchcraft and like superstitions. By long and tedious evolution, by rediscovery of the basic principles laid down by Aristotle, medicine has gradually won its way back to a dignified relation to science. However, there still cling to it some of the superstitions, prejudices and even practices of the medieval charlatans; to rid ourselves permanently of these, we must be willing to pass through the fire of scientific purification, and then ask for the recognition which is due a department of general science.

Medicine is essentially an art of application, an intermediary between abstract science and humanity. In the justly proud knowledge of its wonderful contributions to human welfare and happiness, medicine cannot af-

ford to lose sight of its debt to other branches of general science. What is hereafter said is not to disparage the important contributions of medical workers to many other departments of science. Through the entire fabric of civilization runs a golden thread which represents the untiring and unselfish efforts of medical workers guarding the health and happiness of the world, in research, in sanitation, in the every day toil of healing the sick. But it is my present task to turn the other side of the picture and recall some of the features of the debt which we owe to science in general.

When we consider the skeleton, we must not forget that Cuvier, a zoologist, laid the foundation for the rational study of morphologic anatomy. In treating digestive diseases, we must remember that Claude Bernard, an abstract physiologist, gave us most of our present day knowledge of the pancreas and liver. In fighting bacterial diseases, we are so deeply indebted to Pasteur, the chemist and physicist, that we can hardly realize what bacteriology would be today without his pioneer work. In serum and vaccine therapy, Metchnikoff, the zoologist, laid the foundation for our present day knowledge of immunity. The oculist and aurist should gratefully remember that Helmholtz, the physicist and mathematician, gave a new impetus to researches into sight and hearing. In radiology, Roentgen, the physicist, and Curie, the chemist, with their successors, have given us everything we know about X-ray and radium. In connection with tuberculosis, Miller, the structural anatomist, without knowledge of clinical medicine, has revolutionized our understanding of lung diseases. In studying infected wounds, the name of Dakin, the chemist, will always be linked with that of Carrel, the surgeon. Trench fever baffled the medical workers of the world until the entomologist came to the rescue and revealed the insignificant louse as the malefactor.

It is not, however, to the individuals, but to the sciences which they represent that we should turn our eyes, and it is my purpose in this brief address, first to call attention by several illustrations, to the important and intimate relation between medicine and some other departments of science; second, to make an appeal for a closer and more systematic affiliation between medicine and organized medicine in general.

II.

Medicine has already recognized its dependence upon the fundamental sciences of chemistry, physics and zoology to the extent that Class A medical schools now require, as a foundation, two years work in these branches before a student can begin to erect thereon a knowledge of applied biology, or medicine. The new life which has been infused into medicine by this readjustment of relations with its forbears has made medical men realize their dependence upon general science, so that, today, they dare not say to any branch, "we have no need of you."

It is, of course, a far cry from the nebulae or other wonders of pure science to the erythrocytes of man and there would appear to be a very tenuous bond between scientists of such departments and the physician,

except the sympathetic one of belonging to the same general family. There are times, however, when the necessity for a closer affiliation between the different branches of science becomes very apparent. A striking demonstration of this was given, when the National Research Council, in the recent war activities, attempted to co-ordinate all departments of science into a unit for a common purpose. It then became evident that some branches, among which medicine was prominent, had not maintained a proper liaison with other departments with which it was necessary to work. Our profession which was, to a large extent, educated before our schools began to require a knowledge of chemistry, physics and zoology as preliminary to the medical course, found itself, as Prof. Hammett, of Harvard, said, in the position of a man awaking and desiring to start the water boiling, but unable to light a fire because he was not acquainted with the use of wood and coal. It is not a matter of pride, therefore, to recall that some matters which properly belonged to our domain, were removed bodily from our control by the Research Council and turned over to other departments of science more capable of handling them. One illustration of this must suffice, although there were several such instances.

In mobilizing the medical resources of the country, it was found that a very important work must be performed by psychologists, and a department of psychology was created, but the medical profession could not supply the personnel and the council had, perforce, to turn to a branch of science which, to many of us, will appear utterly alien to medicine. Anthropology supplied our country with its psychologists and medicine took comparatively little part in this work. This recalls the criticism of Dr. Paton, an eminent medical psychologist, who has taken our profession to task for its failure to study human conduct. He considers that the physician, because of his training, ought best to appreciate the biological unity of man and the impossibility of dissociating mind and body; he asks the pertinent question, "Will it be necessary for an intelligent lay public to lead the medical profession to appreciate its opportunity and responsibility in this particular field?" The most peculiar thing about psychology is the fact that although it is very patently a department of physiology, dealing with the higher functions of the brain, it has developed independently of medicine and has to force its attention upon those most capable of understanding brain activities and reactions. The fact that psychology has been linked with anthropology instead of physiology is due to our failure to appreciate that the study of human behavior is the normal province of physiology and that human misbehavior falls within the domain of pathology. If psychology is to be lifted out of the trash heap of spiritism, clairvoyance and cheap knavery, it must be done by the medical profession. Much of the work and many of the conclusions of psychologists who have no knowledge of bodily disease will not be acceptable to medically trained men whose chief attention is fixed on organic changes. On

the other hand, the physician who ignores the effects of structural pathology on the mental processes of his patients, or who makes no study of human conduct dissociated from organic changes, will present equally imperfect results. The psychologist should be medically trained, but he should realize that anthropology forms one of the primary roots of the tree of medical knowledge and he must maintain a sufficiently close relation to this science to make intelligent use of the knowledge which its workers furnish him.

Many problems, the solutions of which are of vital moment to us, are being worked out without our co-operation and almost without our knowledge, in other branches of science. If we do not assist in solving these problems, the least we can consistently and safely do, is to have an intelligent interest in the work whose application will be in our hands. While our time is so fully occupied in making our living out of the empirical application of biological facts discovered for us by those especially trained to pursue these researches, we will not inquire deeply into the processes whereby practical conclusions are reached. However, this trustful acceptance of results should not be carried to the extreme which is sometimes witnessed. For example, the universal use of arsphenamine is almost entirely on an empirical basis, for many physicians not only are without interest in the history of the marvellous work of Ehrlich and his associates, but have also neglected to arm themselves with the knowledge necessary to an intelligent use of this drug. Some apparently competent physicians confess ignorance of the active principle in arsphenamine. Perhaps the majority of us do not know enough about its chemistry to appreciate fully the dangers of oxidation prior to injunction, and the difference between arsphenamine and neoarsphenamine in this respect; fully as many of us fail to appreciate the biochemical effects of the peculiar combination permitting the safe injection of an amount of arsenic which would be fatal in other combinations.

Much that is spurious is given us in the name of science and we certainly cannot deny our responsibility to acquire sufficient fundamental knowledge of the serum, vaccine or drug he uses is wholly encompassed us. Yet, in the field of biological therapy, far too often a physician's knowledge of the serum, vaccine or drug he uses is wholly emcompassed by the advertisement of the commercial concern which offers it to him. He is often as ready to use Friedman's turtle vaccine for tuberculosis as he is old tuberculin; he will use phylocogens as quickly as autogenous vaccines; anything offered him in the name of science will be accepted, although frequently the very offering of it is a gratuitous insult, because the advertisement of the product assumes that the physician is ignorant of the fundamental principles of his own art.

In the field of general physiology, much research work is being done which will have a profound effect upon the future development of medicine. The problems of growth, cell-division, muscular contraction, peristal-

sis, transmission of stimuli, chemical control of metabolism, the control of vital processes, are being worked on by general physiologists, physicists and biochemists, and if we are to make practical application of the data which they will supply us, it is necessary that we give sufficient attention to their work to make us worthy recipients of this responsibility. In our own researches into problems connected with clinical medicine, far too often our work is superficial, because we do not base it on fundamental principles of science. We build on the shifting sands of theory, of conjecture, of preconceived ideas, only to find that our conclusions are not permanent. This is well illustrated by the attempts to solve the problems of acidosis in an atmosphere of detachment from all related branches of science. Physiologists for years devoted their attention to phenomena and to analytical work on factors which were eventually shown to be results and not causes. Henderson, who finally gave us the proper perspective, went back of organized life and studied the processes concerned with the organization of living matter in its simplest forms. Not until then did the abnormal series of events which we call acidosis become plain and then also the curious fact was uncovered that this phenomenon which has vexed the medical profession for years was a commonplace in zoology and the buffer adjustment which is concerned with acidosis was found to have been described by biologists as far back as Aristotle. Here we have an illustration of an important medical problem, a matter of very practical value in daily practice, which cannot be understood or intelligently treated, when detached from its relations to experimental morphology, biological evolution and the organization of living tissue; it is inextricably bound up with the Darwinian principle of adaptation and should be observed against the background of life in general as defined by Spencer, "the continuous adjustment of internal relations to external relations." This definition is rather vague and unsatisfactory when applied to life as a whole, but is a very accurate definition of those biochemical processes which are disrupted by acidosis.

A final illustration will be given to show the intimate bearing on medicine of the commonplace observations of zoology. Every physician and surgeon appreciates the importance of a knowledge of peristalsis. If we do not understand this important function of the gastro-intestinal tract, we cannot understand vomiting, diarrhea, reflex constipation, pylorospasm, the commonest phenomena of abdominal disease. Yet, until very recently, peristalsis was incorrectly interpreted and described by physiologists. It was never understood until practical medical men were willing to retrace their steps into zoology and study peristalsis in its first manifestation in worms, tracing its development from there into the higher forms of life. When this was done, it became evident that peristalsis is an inherent, antonomous function of intestinal muscle; that it is not initiated, hastened or stopped by nerve action, the sympathetic and vagus having only the simplest regulatory effects. By sweeping aside preconceived ideas founded

on a false physiology and accepting the teaching of zoology that unstriped muscle is possessed of automatic and rhythmic contractility, whether found in aquarium worm, fish, guineapig or man, our understanding of peristalsis is clarified and our future treatment of gastro-intestinal disease will be correspondingly more intelligent.

III.

If it has been made clear that there is a reason for the maintenance of closer relations between medicine and other branches of science which have to do with the study of living matter, we may yet ask what have we to do with those scientists whose work, by no possibility, can touch or affect ours? Is there any practical benefit to us, and is there any service to humanity to be rendered by us through a more intimate relation with the abstract departments of science?

Prof. Hammett says that the efficient practice of medicine requires a scientific knowledge of ever widening scope. We do not dare limit our horizon, but there is no intention, whatever, to argue that medical men should become erudite in the natural or philosophic sciences. I thoroughly agree with Prof. Gay that the best accomplishments in the medical sciences is to adopt the bloodhound method of nose to the trail, to encourage specialization, to dig deep rather than spread smooth. But we can ally ourselves sympathetically with organized science in general without crowding our craniums with knowledge regarding matters which do not affect our work. Most of us are totally ignorant of engineering, agronomy, botany, astronomy or higher mathematics, and so far as we can see, there is no occasion for us to know anything about these things. However, there should be an alliance between the representatives of these different departments of science and the representatives of medical science, which will lead to mutual respect and which will enable the scientists of any department to distinguish the real and the spurious in the other departments. This would be a matter of very practical benefit to us and is a consummation which we sorely need. It is chiefly our own fault that the educated men and women of our various communities, those versed in mathematics, physics, pedagogy, engineering, are unable to distinguish between the true scientists of medicine and those who profane jointly the names of science and deity, or who perjure themselves by a base imitation of medicine. It is furthermore almost entirely our own fault that we cannot secure the encouragement and support of general science in our struggles against those who would hamper us and who testify falsely against us. If we deny our parent, we cannot expect parental support when we need it.

A detached attitude on our part will result in the failure of general science to appreciate the importance of some of our cherished ambitions. Prof. Herrick, in a lecture on the "Opportunities of Scientists in the Upbuilding of Peace," states four momentous problems which face the world today for solution. These are (1) increase in the production of the necessities of life; (2) development of more efficient means of transportation;

(3) increase in the sources of physical power and force; (4) maintenance and increase of the ideals and spiritual forces of humanity. To me, the significant and regrettable feature of this program is the omission from it of any mention of the conservation of national health. Certainly the increasing of sources of physical power and force and the maintenance of ideals are intimately related to the physical and mental health and virility of the man-power upon which the entire program depends. Here, through a lack of sympathetic affiliation, medicine has failed to impress the intellectual world with the importance of our great national purpose. An additional and disquieting thought, in this connection, is that the medical profession may not yet be considered the natural and inevitable authority in the problems of public health. We see many instances in which this is true, and the reason for it is that we have not maintained a sufficiently close and confidential relation with general science.

Among medical men, there is a fairly general sentiment of indifference to every field which is not of direct practical value to our daily work. Our attitude is very similar to that of Dickens' schoolmaster who must find a practical application for every bit of knowledge doled out by him. A window, to him, did not suggest the physics of light, the science of glass-making, or the chemistry of silicates. It was only a "w-i-n-d-e-r, go out and wash it." Most of us are like old Squeers, and if we cannot find some angle of immediate utility in a scientific fact, we are prone to ignore it and to consider that there is no common bond between those who study the manufacture and physics of glass and us, whose duty it is to clean the window. We have lost sight of the important truth that our usefulness, our ability to come to fruition in our chosen field will depend upon fundamental natural or acquired habits of mind, upon diversity of knowledge, precision of thought and accuracy in judgment. The height of the structure which we erect must, of necessity, be in proportion to the breadth as well as the strength of the foundation upon which we build it, an elemental engineering principle which is peculiarly applicable to medicine. The masters of medicine and surgery have all been men who have maintained their contact with science in general and have always been eager to grasp and store for future reference any revelation which was even remotely connected with their art.

Sir James Mackenzie has said "Medicine has not attained that position in science which ought, of right, to belong to her. Instead of leading in scientific development and giving guides and indications to allied branches, she is too often content languidly to follow in their wake, or to pursue some erratic course of her own. The sister sciences, in place of seeking for assistance from medicine, look askance at the wild speculations put forth in the name of medical science, at the loose thinking and play of imagination which many medical writers deem legitimate in dealing with the phenomena of disease. To emancipate medicine from this position of inferiority, and to secure for it that status which it ought to pos-

sess, an effort must be made, as far as possible, to free it from the habiliments which have hampered it in the past, and if this appears an unattainable goal at present, its votaries may at least aim at greater precision in thought and observation."

One of the chief advantages which might accrue to medical men, in listening to the workers in more exact fields of science would be their example of accuracy in observation and precision in thought and expression. Such precision in thinking and definiteness in expression are among the rarest of qualities among medical men. This is the more remarkable since, in no branch of science are these qualities more desirable or necessary for successful application of knowledge.

It is, of course, not to be expected that a physician or surgeon, busily engaged in securing his share of this world's rewards, and with a rising appreciation of what those rewards should be, will find a great deal of time to devote to subjects which have no immediate cash value. However, even the high cost of living should not blind us to the fact that we are primarily scientists, practicing one small branch of science as an art. Medical men usually stand aghast at the ramifications of their science, even within the domain of practical utility. Biochemistry has become so intimately associated with medicine that hospitals are beginning to place biochemists on their staffs as regular consultants, thereby attempting to bridge the widening gap between the things which we know and the things we ought to know, in order to cover our own field intelligently. On the other hand, medicine is retrenching and is sacrificing one of its important activities, that of public health, which will eventually be turned over to the department of social economics.

When we contemplate a serious study of biological chemistry, in order to inform ourselves about the fundamental constitution of living protoplasm and the practical phenomena connected therewith, as growth and tumor formation; when we attempt to plumb the depths of physiological chemistry with its colloids, metabolic rates and abnormal products of metabolism, so that we may understand goitre, diabetes, anaphylaxis, or bacterial infection; when we timorously venture into comparative zoology so that we may be informed about peristalsis and the other autonomic functions of living tissues and organs, the vast majority of us are willing to draw back and content ourselves with empirical drug therapy or purely mechanical surgery. Then if one approach with the suggestion that we should have a speaking acquaintance with physics, inorganic chemistry, general biology, entomology, anthropology, and their numerous offspring, if we can be convinced that he is sane, we should probably regard homicide as a justifiable act. Yet these and many other departments of science touch our art at some point, and often very intimately, and our acquaintance should be sufficient that we will not be utter strangers to them when we approach to receive their frequent gifts.

It should be both our duty and our privilege to declare that medicine

is a department of general science; that everything which relates to the human body is our proper domain. If we take the heritage which has been given us and bury it in the ground, we will be like the unprofitable servant who could show nothing but the original gift when asked for an accounting. But if we nurture our heritage, if we draw from the research sciences in which we are rooted the life giving and growth producing knowledge which we have not yet begun to exhaust; and, if in addition, we reach out into the genial light of the more distant sciences, drawing from them encouragement, sympathetic understanding, appreciation of our aims and purposes, and the co-operation which affiliated sciences can give each other, we will show a healthy growth, a normal and well rounded development which will eventually receive the approval accorded the good and faithful servant.

SIXTH ANNUAL MEETING OF THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST, DEC. 2, 3, 4, 1920.

From the standpoint of registrants, this has been the largest meeting that we have ever had. The total ran to about 150. In order, El Paso led with Albuquerque second, Phoenix third and Tucson fourth. Twenty-four new members were taken in at this meeting, establishing another record.

The clinical sessions covered all the more usual things and many of the unusual. It makes little difference what work a man might have been doing at home, he could not have failed to profit by the clinical sessions if he attended. The material was worked out even better than usual. Diagnoses had been carefully worked out and no flukes were witnessed. It was unnecessary to change the contemplated line of lectures to fit an unthought-of complication or mistaken diagnosis. The local men feel that they provided the full value to the visitors for every dollar spent in coming. Had there been nothing but the clinical material, we feel that the visitors would have felt repaid.

However, that was really the smallest part of the meeting. We have attended other meetings of larger associations in more populous centers nearer to where things are supposed to happen, but we have never attended any meeting where the papers were of such uniform high character. Certainly, there has never been a meeting in El Paso which equalled this, either in the variety of subjects covered or the excellence of presentation. Although, as usual, the visitors prepared the papers, they must feel that they profited no less than we in listening to them. We were tremendously pleased and though modesty may have prevented any similar expression on their part, we know that they must have felt it. To El Paso and incidentally to themselves, they showed that on occasion they could "deliver the goods" in truly metropolitan style.

The papers of our guests—Dr. Smith of Rochester, Dr. Prichard of

Battle Creek, Dr. E. H. Skinner of Kansas City and Dr. MacDougal of the Desert Laboratory—were of uniform excellence. We cannot, in justice, say that they were any better than the papers of our visiting members. That would be "painting the lily." To say that they were as good is paying them a high but well deserved compliment.

Apparently it would not be Gallagher without some criticism. At that we try to make criticism reasonably constructive. In this, we do not mean that we hit at any individual, for the matter was rather general. It seems to us that an especial effort should be made to have the attendance well up when an invited guest reads a paper. It may be inconvenient to stay for the guest's paper but we believe that inconvenience is not a good enough excuse to plead in extenuation of absence from the reading of a guest's paper. It should be some sort of a minor catastrophe, at least, and occurring to us personally before we should permit ourselves to be absent at the reading of such a paper. You owe that courtesy at least to the guest and to the officers of the association who are responsible to the guest.

The joint public meeting with the American Association for the Advancement of Science was not nearly as technical as some of us had anticipated. In fact, we had an enjoyable time, learned a lot about this general region that we had not known and felt that we were sorry that the medical attendance was not greater.

The dance given by the El Paso County Medical Society was one of the best features of the meeting. The local society was very gratified to find that the guests were very well represented. In fact, there were as many visitors as local people. Some of them left before the party was over but the majority stayed till "Home, Sweet Home." It seemed to be a feature that will bear repetition at other meetings. We feel that if there were more of that sort of thing that more of the members would bring their wives. We are sure that those who did come with their wives will bring them next time, too.

The only disappointment expressed at the banquet came from those who were scheduled to make speeches, and even these did not begin to weep till after the venison had been served, and by that time they were apt to feel sorrowful and shed a few tears at matters of considerable less moment. As predicted in the program, the banquet was well attended. For those who stayed away because they hate to see anyone have a good time, we can say with perfect assurance, that the general behavior here last year was no better and the general time not so good.

We believe that all of us had a darned good time from Wednesday night when the first enthusiast happened up to the University Club till Saturday night when the last car brought home the last of the banqueters.

THE LIST OF REGISTRANTS.

Texas, 79. El Paso, 76; Hillsboro, 1; Midland, 1; Dallas, 1.

New Mexico, 40. Albuquerque 16, Penasco 1, Deming 5, Springer 1, Las Vegas 1, Lincoln 1, Capitan 1, Duran 1, Hope 1, Las Cruces 3, Alamogordo 2, Magdalena 1, Silver City 1, Dawson 1, Oscuro 1, Carrizozo 1, Roswell 1.

Arizona 16. Phoenix 8, Miami, 1, Tucson 2, Mesa 1, Morenci 1, Clifton 1, Willcox 1.

Minnesota, Rochester 1.

England, London 1.

Alaska, Craig 1.

Missouri, Kansas City 2.

Michigan, Battle Creek 1.

California—Los Angeles 1.

Colorado, Denver 1.

A FEW QUESTIONS IN TUBERCULOSIS

BY

DAVID C. TWICHELL, M. D., Albusuerque, N. M.

(Read at Bernalillo County Medical Society, Albuquerque, N. M., January 21, 1920.)

Questions are easier to ask than answer. If they are duly considered and provoke discussion they are worth while.

As our knowledge of tuberculosis is in a fluid state with a constant shifting of the center of gravity, the following questions are in order:

1. With the premise that infection with tuberculosis is practically universal, are such factors as bad housing. bad living, bad working conditions, faulty personal habits of eating, sleeping, working, exercising, etc., the preeminent factors in causing tuberculosis disease?

2. Is the fundamental cause of tuberculosis the racial factor?

Pearson, Pearl and Davenport, of the eugenics school, answer: If a man inherits the right kind of race stock he will survive; if he does not he will succumb to tuberculosis.

3. Or is tuberculosis all a matter of faulty nutrition?

Yes, say McCollum of Hopkins and Lusk of Columbia.

4. Is tuberculin a beneficial therapeutic agent in pulmonary tuberculosis?

Baldwin has said that tuberculin is an agent of limited application and used with safety only in quiescent pulmonary tuberculosis. In the 1918 Annual Report of the Trudeau Sanatorium it is stated that tuberculin has been largely discontinued at that institution

Fishberg has found tuberculin either altogether wanting in therapeutic effects when used in infinitesimally small doses or decidedly harmful when given in substantial doses.

5. Did influenza increase the incidence of tuberculosis?

Fishberg says: "Epidemic influenza has no etiological relation to tuberculosis, and is not to be considered as a reactivator of dormant tuberculous lesions."

Dublin, statistician of the Metropolitan Life Insurance Company, says: "The tuberculosis death rate usually drops considerably in the last quarter of the year, but in 1918, probably because of the influenza epidemic, there was next to no decline."

6. Has the record of the reduction of the death rate in tuberculosis of the industrial department of the Metropolitan Life Insurance Company since 1911 meant that one death in every six has been prevented entirely or merely delayed by the present methods of treatment which tend to prolong the life of chronic tuberculous invalids?

7. What indicates and what is a true definition of activity in pulmonary tuberculosis?

The answer to this question was a pressing one under the circumstances of liability to military service. It is of equal importance in civil life.

8. Is there an immunity, natural or acquired, in tuberculosis?

9. Do the children of the tuberculous inherit susceptability or resistance?

As Krause says: "It need hardly be pointed out that these two conceptions are thoroughly antagonistic and incompatable." His argument tends to favor inherited resistance. But at least we can say that such offspring are very apt to inherit a dangerous environment. The court of chancery of New Jersey, in a late decision for annulment of marriage for concealing tuberculosis, states, undoubtedly with the best of expert medical opinion, that "there is always also great danger of transmittal of the disease to offspring, and if the disease is not transmitted there are likely to be transmitted characteristics which predispose toward the development of the disease."

10. Are colonies for the tuberculous to be the next development in a forward program?

In such colonies the protection and rearing of the child under right environment becomes of the first importance. Albuquerque, of all the health resorts in America, comes nearest to being a tuberculous colony, in my judgment, but are we properly protecting the child? We have a high percentage of families of moderate means with a tuberculous member, who settle and make their homes here; the best type of American families of the class that have several children and do not practice race suicide.

11. Will a campaign carried on along the present lines conquer tuberculosis as a world scourge?

Robert Koch said in Washington in 1908 that he could see no prospect of a specific cure and that tuberculosis could be controlled by such

a program. This has been the basis of our campaign since that time—the German model of state control. The slogan in that year was "No uncared for tuberculosis in 1920." Some even read it "No tuberculosis in 1920."

On the same occasion in Washington I heard Dr. Trudeau. commenting on Koch's remark. say that he did not believe tuberculosis could ever be wiped out by such a program, but that a specific cure or immunizing agent would have to be discovered to accomplish such a result.

EDITORIALS

We wish to call attention especially to the address of the President of the Medical and Surgical Association of the Southwest appearing in this issue and emphasize the importance of his main theme, namely, a broader and more thorough training in the basic and allied sciences of medicine for those who will aspire to the true dignity and character of "Physician."

It is true that some with an apparently inferior preparation have attained deserved eminence in the profession; but as in other walks of life where large success has crowned the efforts of men who have advanced from the lowest beginnings, there has been a divine spark of genius which urged them on to intensive unremitting toil to fill up the gaps, to make up the hadicap, and so to succeed.

We are accustomed to say that medicine and surgery have made gigantic strides in recent years; it is certain that in any given period the advancement has been directly proportionate to the progress made in their basic and allied sciences; and herein is the reason that the last two decades especially have seen wonderful achievements in our professional work; and herein precisely is the reason why the physician of the future must be more conversant with the general principles of the sciences which have contributed and which will contribute again to the development of medical skill.

New York, December 9, 1920.

Mr. George E. Vincent, President of the Rockefeller Foundation, authorizes the following:

The discovery by Dr. Hideyo Noguchi, at the Rockefeller Institute for Medical Research, of a vaccine for yellow fever, introduces a new factor in yellow fever control through the possibility of making persons immune to yellow fever by vaccination.

Heretofore, work in yellow fever control has been entirely that of prevention of infection by controlling breeding places of the mosquito which carried the yellow fever germ. The isolation of the yellow fever organism, however, has made it possible for Dr. Noguchi to develop a serum which it is believed will reduce the mortality from yellow fever and

a vaccine which gives promise of protecting the non-immunes against contracting the disease.

Already vaccination against yellow fever of people going to tropical countries is being made in New York. This work is being done at the Broad Street Hospital with vaccine furnished by the Rockefeller Institute.

The first shipment of vaccine for yellow fever from the Rockefeller Institute to tropical countries was made a year ago when three hundred bottles were sent to Mexico. Other shipments have been made since then, the latest on November 10th. All vaccine supplied to Mexico is sent to the Mexican Department of Health, which arranges for its distribution.

The Central American countries are so well convinced of the efficacy of Dr. Noguchi's vaccine that they are permitting travel without quarantine detention of those who have been successfully vaccinated.

BOOK REVIEWS

Arteriosclerosis and Hypertension, with chapters on Blood Pressure, by Louis M. Warfield, A. B., M. D., F. A. C. P., formerly Professor of Clinical Medicine, Marquette University Medical School; Chief Physician to Milwaukee County Hospital. Third Edition. C. V. Mosby Company, St. Louis. Price, Cloth, $4.00.

In recent years blood pressure has become such an important factor in the diagnosis and prognosis of both medical and surgical diseases that a work on this subject, which has passed into the third edition, at once attracts our attention.

The intention of the author has evidently been to center the work around arteriosclerosis, its etiology, sequellae and related conditions. One of the most interesting chapters deals with the prophylaxis of this dread condition that lies in the pathway of each one of us as the advancing years slowly but surely detract from our "Arterial Rubber."

Blood Pressure is treated more extensively than the title would suggest, and in a manner that should make the work of great value to every physician who feels the mental strain of his medical practice, or who has any apprehension regarding his own arterial walls. —E.B.R.

A Diabetic Manual for the Mutual Use of Doctor and Patient, by Elliott P. Joslin, M. D., Assistant Professor of Medicine, Harvard Medical School. Illustrated, Second Edition, Revised. Lee and Febiger, Philadelphia and New York. Price, Cloth, $1.75, Net.

This book well expresses the aim of the author in stating that its object is, "To make the home safe for the diabetic," and serves admirably, not only for the physician but also for the education of the patient. The latter is certainly the key note to the successful management of any case of diabetes.

Of special interest is the recent improvement in the treatment of the diabetic as shown by the mortality rate in hospitals decreasing from 28 per cent in 1900, to 4 per cent in 1918. This alone ought to give the patients a hopeful outlook. The directions are very plain and easily understood, and every patient of average intelligence can easily take care of himself at home, referring to the physician only for corroboration. The importance of the test for blood sugar is also shown. The various diet lists are complete. This book should certainly be helpful to the physician as well as to the patient who suffers from this malady. —S.E.W.

THE DISEASES OF INFANTS AND CHILDREN.

The Diseases of Infants and Children, by J. P. Crozer Griffith, M. D., Ph. D., Professor of Pediatrics in the University of Pennsylvania. Two octavo volumes totaling 1542 pages with 436 illustrations, including 20 plates in colors. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, $16.00 net.

Pediatrics is rapidly assuming the importance it deserves and any work on this subject is welcome when coming from so well known an authority as J. Crozer Griffith.

The Diseases of Infants and Children, by Dr. Griffith, comes out in two volumes, the first of 885 pages and the second of 657, with 20 plates and 436 illustrations, making a very exhaustive and voluminous work.

This work is quite exhaustive in charcter and as the author expresses it, without being encyclopedic. The wealth of illustrations makes the text particularly clear and impressive. Also the combination of the English and metric system of measurements is a helpful feature, particularly to the person not familiar with the latter. Numerous cross references are also helpful in elucidating the text.

Particular attention and minute directions are given to treatment other than by drugs and by the mouth. This feature is highly commendatory for there are many things that can be done for the patient, especially in infancy, other than by giving drugs by mouth, for the digestion and stomach must be conserved in infancy if one is to succeed.

In the treatment of diphtheria it is to be noted that he does not recommend the tremendous doses of antitoxin advised by some authorities, but is conservative, giving 5 to 10 thousand units. There are also minute directions regarding the Shick reactions and technique.

Of the recent works on Pediatrics that have come to my notice, this work of Griffith impresses me as being the most exhaustive and practical of them all and one suited to the uses of either the general practitioner or pediatricians. —J.A.R.

The Diagnosis of Disease, by Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics and Diagnosis in the Jefferson Medical College of Philadelphia, etc. Eighth Edition, Thoroughly Revised. Illustrated. Lea and Febiger, Philadelphia and New York. Price, Cloth, $6.00.

In this work symptoms are used as the basis for arriving at a diagnosis, rather to the exclusion of laboratory investigation. The author intimates what is probably a fact, that in these days of brilliant laboratory methods, many physicians are apt to depend too much upon the laboratory for their diagnosis to the exclusion of a careful study of the symptomatology. His object has been to draw attention to a careful study of the patient, whereby diagnosis may be made independently. This will be especially acceptable to physicians who have no laboratory near at hand.

The plan of the work has been to discuss a prominent symptom in detail, grouping about its different sets of symptoms that will lead one to the various diagnoses possible. For instance, headache is discussed in a chapter of sixteen pages, and combined in various symptom complexes, is traced to over twenty-five diseases that may be the causative factor. Pain, cough, vomiting, the abdomen, the eye, are other important subjects treated similarly. When we have an obscure case for diagnosis, or when we have gotten into a rut by reason of our having grouped symptoms about a hasty or faulty diagnosis, as we all do at times, the study of a pertinent chapter in Dr. Hare's book cannot fail to broaden our field of vision, and will often suggest the proper direction to follow. —E.B.R.

PASTEUR—The History of a Mind, By Emile Duclaux, Late Member of the Institute of France. Professor of the Sorbonne and Director of the Pasteur Institute. Translated and edited by Erwin F. Smith and Florence Hedges, Path-

ologists of the U. S. Department of Agriculture. Octavo of 363 pages, illustrated. Philadelphia and London. W. B. Saunders Company. 1920, Cloth, $5.00 net.

This work is not a biography but, as the title indicates, the story of the development of Pasteur's mental processes from his studies in crystallography, through spontaneous generation of his work in immunity. Duclaux, former student and friend of Pasteur, derives his facts from personal knowledge and by analysis of Pasteur's thoughts as obtained through study of his writings as well as of those with whom Pasteur was engaged in various polemical discussions. The book is interesting and instructive as an account of the progress of a genius through unexplored territory. The work of the translators is excellent. —E.A.D.